Pharmacist Intervention on the Stroke Team in the Emergency Department

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INTRODUCTION

- Tissue plasminogen activator (tPA) was first approved by the Food and Drug Administration (FDA) in 1996 for the treatment of acute ischemic stroke.[2]
- tPA is given intravenously (IV) and dosed based on the patient's weight. Studies have shown that tPA is dosed incorrectly in 29% of cases due to weight discrepancies.[1] Inaccurately dosing tPA is associated with negative outcomes, including bleeding.[1]
- Gwinnett Medical Center (GMC) is a 500-bed community hospital and an advanced primary stroke center. tPA is dosed using a chart with pre-determined total dose, bolus dose and infusion doses based on the patient's weight, which is rounded to 2-3 kg intervals.
- Door-to-needle (DTN) time is defined as the time between the arrival to the emergency department (ED) and the administration of the tPA bolus dose; the national goal DTN time is less than 60 minutes. Studies have shown a statistically significant decrease in mortality for every 15-minute reduction in time to tPA administration.[4]
  - To meet core measures, 50% of patients must receive tPA within 60 minutes. However, nationwide only 30% of patients receive tPA within this window.[3]
- At GMC, an ED pharmacist is only present during the hours of 1:30 pm to midnight seven days a week and has been a part of the ED stroke team since August 2015.

PURPOSE

- Primary endpoint is to compare stroke patients who received tPA with a DTN time <60 minutes with and without a pharmacist present.
- Secondary endpoint is the accuracy of the patient's weight used to calculate the tPA dose with and without a pharmacist present.

METHODS

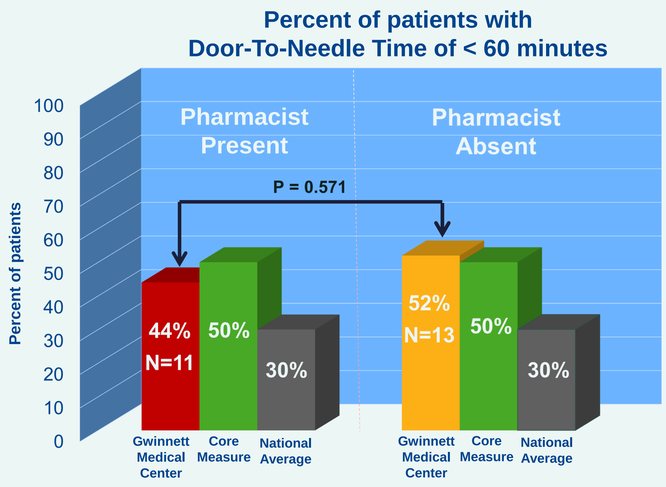
- Conducted a retrospective chart review of patients who were administered tPA for the treatment of ischemic stroke from August 2015 to August 2016.
- 50 patients were randomly selected
  - 25 patients received tPA **with** an ED pharmacist present
  - 25 patients received tPA **without** an ED pharmacist present
- Data collection included ED arrival time, tPA administration time, patient's weight used for tPA dosing, and patient's weight post-admission (within 72 hours).

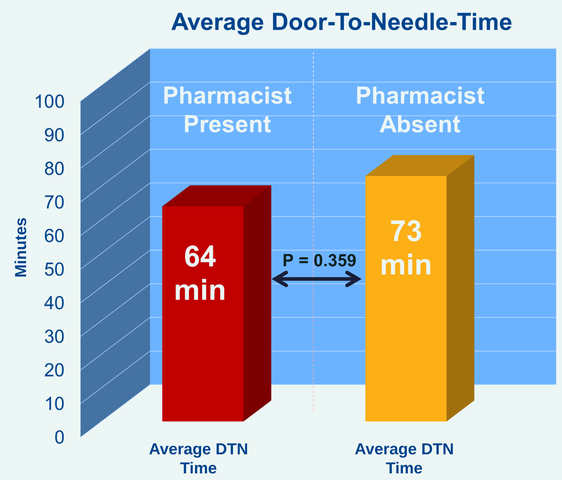
RESULTS

Patient Demographics

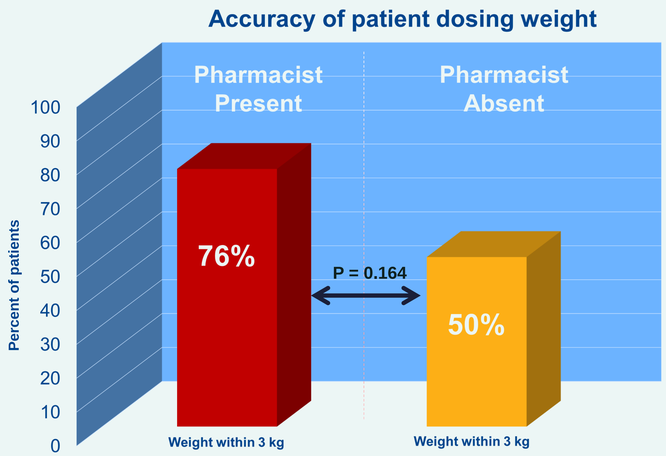
N=50	Average Age (years)	Gender		Average Weight (kg)
		Male (%)	Female (%)	
Pharmacist Present	67	44	56	81 (52-118)
Pharmacist Absent	66	48	52	81 (56-141)
P-Value	0.87	0.77		0.99

Primary Endpoint





Secondary Endpoint



DISCUSSION & CONCLUSION

- This review shows the potential benefits of having a pharmacist as a member of the stroke team.
- The percent of patients with a DTN <60 minutes was higher with a pharmacist absent and was likely due to confounding variables and a small sample size. Regardless, both groups were above the national average and the DTN time was improved by an average of 9 minutes when a pharmacist was present.
- tPA was more accurately dosed when the pharmacist was present. This is likely due to the pharmacist weighing the patient using a scale or ED bed, instead of using the patient's stated weight to dose tPA.
- In accordance with the American Stroke Association/American Heart Association "Target: Stroke" initiative, the pharmacist may play a significant role in preparing the tPA ahead of time and having it available for rapid access.[3]
- The future goal at GMC is to have 75% of patients receive tPA within 60 minutes, of which half of those patients should have a DTN time < 45 minutes.

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